AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions of claims in the application.

Listing of Claims:

1. (Currently amended): System for controlling the state and operation of a motor vehicle equipped with a dynamic braking device and a static braking device, comprising

a plurality of sensors (C1, … Cn) on board the vehicle, including a sensor of the longitudinal deceleration of the vehicle, at least one sensor of the rotation speed of one of the wheels of the vehicle, a sensor of the displacement of the wheels of the vehicle with respect to the body of the ~~latter~~ vehicle, and a sensor of the pressure of the master cylinder, and

a piloting device receiving information from the ~~various~~ plurality of sensors and adapted to determine from said information and from information representative of the states of the brake and acceleration pedals of the vehicle, the state of the vehicle and to calculate braking orders transmitted to the dynamic and static braking devices,

so as to perform ~~at least one of~~ the following actions: (i) to maintain the vehicle immobilized as soon as the speed of the vehicle is zero, (ii) to restart the vehicle after it has stopped, (iii) to trigger a controlled deceleration of the vehicle, and (iv) to ensure a secure braking of the vehicle in a stopped state of the vehicle.

2. (Previously presented): System according to claim 1, wherein the piloting device is adapted to immobilize the vehicle as soon as the speed of the vehicle is zero by braking the vehicle

through the simultaneous actuation of the dynamic braking device of the vehicle and of the static braking device of the vehicle when the vehicle is located on a relatively steep slope.

3. (Previously presented): System according to claim 1, wherein the piloting device is adapted to immobilize the vehicle as soon as the speed of the vehicle is zero by braking the vehicle through the actuation of the static braking device of the vehicle when the vehicle is located on a relatively gentle slope.

4. (Previously presented): System according to claim 1, wherein the piloting device makes it possible to determine the slope on which the vehicle is moving by calculating the difference between the value of the longitudinal deceleration of the vehicle provided by the sensor of the longitudinal deceleration and the value of the longitudinal deceleration calculated from the sensor of the rotation speed of a wheel of the vehicle to determine a shift value of the longitudinal deceleration $\gamma_{longislope}$ and by calculating the slope according to the formula:

$$slope[\%] = 100 \times \tan\left\{\arcsin\left(\frac{\gamma_{longislope}}{g}\right)\right\}$$

wherein g is the acceleration of gravity.

5. (Currently amended): System according to claim 4, wherein the piloting device makes it possible to analyze the evolution of the calculated slope to verify ~~its~~ the coherence of the

calculated slope with the distance covered by the vehicle so as to avoid taking into account for the immobilization of the vehicle a small distance covered by the vehicle for a calculated slope gap, by using the following formula:

$$\Delta slope = Arc\cos\left(\frac{b-\Delta b}{a}\right) - Arc\cos\left(\frac{b}{a}\right)$$

where a is the wheel base of the vehicle and

b is the distance covered by the vehicle.

6. (Currently amended): System according to claim 4, wherein the piloting device calculates a correction of the value of the longitudinal deceleration provided by the corresponding sensor from ~~the~~ sensors of the displacement of the front and rear wheels with respect to the body of the vehicle according to the formula:

$$\gamma longisenscorr = \gamma longisensor - \sin\left(\arctan\left(\frac{Zfr - Zre}{a}\right)\right)$$

where γlongisensor is the value of the longitudinal deceleration provided by the sensor of the longitudinal deceleration of the vehicle,

Z_{fr} is the displacement of the front wheels,

Z_{re} is the displacement of the rear wheels, and

a is the wheel base of the vehicle.

7. (Currently amended): System according to claim 1, wherein the piloting device

calculates an optimized braking pressure order applied to the dynamic braking device as a function of the slope on which the vehicle is moving and of an estimation of ~~the~~ a global braking effectiveness of the vehicle determined by the longitudinal deceleration of the vehicle for a given braking pressure resulting from pushing on the brake pedal by the driver of the vehicle during the braking operations of the vehicle.

8. (Currently amended): System according to claim 7, wherein the piloting device optimizes the braking pressure order to a value just required for maintaining the vehicle in a stopped state increased by a multiplying security factor so that the braking pressure applied to the dynamic braking device is above ~~the~~ a zone of braking noises.

9. (Currently amended): System according to claim 8, wherein the dynamic braking system is activated by the piloting device so as to apply the braking order to the four wheels of the vehicle and when the dynamic braking device is deactivated, the braking pressure falls brutally under the ~~noise zone~~ zone of braking noises, then decreases more slowly to a zero value.

10. (Currently amended): System according to claim 1, wherein, during a deceleration of the vehicle, the piloting device calculates a deceleration value from each of the sensors of the speed of the wheels of the vehicle according to the formula:

$$\gamma longiwheels = 2\frac{2\pi R}{N} \times \frac{\frac{1}{Tn} - \frac{1}{Tn-1}}{Tn + Tn - 1}$$

where R: rolling radius of ~~the~~ wheel

N: number of tops per revolution of ~~the~~ sensor

Tn, Tn-1: present and past periods of the square signal provided by ~~the~~ sensor inversely proportional to ~~the~~ rotation speed of ~~the~~ wheel,

the piloting device performing an average of the four calculated values of the longitudinal decelerations for the four wheels and calculating the speed of the vehicle from each calculated value of the deceleration according to the formula:

$$V(t) = \frac{2\pi R}{NTn} \times \gamma longiwheels \frac{Tn + t}{2}$$

where t: time passed since the last upward front of the square signal of the sensor,

and the piloting device performs an average of the four calculated values of the speed of the vehicle.

11. (Previously presented): System according to claim 1, wherein the static braking device comprises an electric geared motor driving at least a cable for actuation of a parking brake acting on the rear wheels of the vehicle and the piloting device calculates the clamping effort in the cable by determining the torque at the exit of the electric motor from the intensity of the electric current of the motor and the output of the reducer of the motor.

12. (Previously presented): System according to claim 1, wherein the piloting device actuates the static braking device when the driver actuates ~~the~~ a control button of the static braking device and when the driver pushes simultaneously on the brake pedal to ensure an emergency mode when the dynamic braking device is out of service.

13. (Currently amended): System according to claim 1,

wherein the piloting device maintains at least one of the dynamic and static braking devices activated if the driver brings ~~the~~ a selecting lever of the gear box into the dead center or neutral position when the vehicle is already stopped,

and the piloting device does not activate any of the dynamic and static braking devices if the vehicle stops with ~~this~~ the selecting lever already in the dead center or neutral position.

14. (Currently amended): System according to claim 1, wherein the piloting device applies to at least one of the dynamic braking device and the static braking device a higher braking pressure order in ~~the~~ case of overloading of the vehicle signaled to the piloting device by a manual action of the driver.

15. (Previously presented): System according to claim 2, wherein the piloting device is adapted to immobilize the vehicle as soon as the speed of the vehicle is zero by braking the vehicle through the simultaneous actuation of the dynamic braking device of the vehicle and of the static

braking device of the vehicle when the vehicle is located on a slope of at least 20%.

16. (Previously presented): System according to claim 3, wherein the piloting device is adapted to immobilize the vehicle as soon as the speed of the vehicle is zero by braking the vehicle through the actuation of the static braking device of the vehicle when the vehicle is located on a slope of less than 3%.

17. (Previously presented): System according to claim 14, wherein the manual action of the driver is by pushing for a determined duration on a control switch of the static braking device.